

REMARKS

Favorable reconsideration and allowance of this application are requested.

1. Discussion of Amendments

By way of the amendment instructions above, a title more appropriate to the elected subject matter claimed herein has been presented. In addition, the Abstract has been revised so as to address the Examiner's criticisms thereof.

Claims 14-18 directed to patentably distinct inventions non-elected for prosecution herein have been cancelled. However, cancellation of such claims has been effected without prejudice to the applicants' rights under 35 USC §121.

The elected claims have been revised in an effort to address the issues raised under 35 USC § 112, second paragraph. In addition, the term "wire" has been clarified to mean a wire "mesh or screen fabric. Support can be found in paragraph 23 of the published US application.

The subject matter of prior claim 8 has been incorporated into the amended version of claim 7. As such, claim 8 has been canceled as redundant.

Claims 19-22 are new. In this regard, claim 21 includes the definition of the bulk material that was removed from the preamble expression of claim 1. Claim 22 is based on prior claim 12 but recast as a method claim dependent from claim 1. Claims 19 and 20 are based on, e.g., claim 7 which defines that the waste water is produced in a pulp or paper production process.

Therefore, following entry of this amendment, claims 1-7, 9-13 and 19-22 will remain pending herein for consideration.

2. Response to Restriction Requirement

Applicants hereby affirm the election of Group I, including claims 1-13, for prosecution herein. As noted above, the claims directed to the patentably distinct inventions have been cancelled without prejudice.

3. Information Disclosure Statement

Attached hereto is a corrected form PTOSB08a listing the references that were previously cited but apparently not considered by the Examiner. Copies of all the non-US publications have already been submitted with the Statement of April 20, 2006. In order to ensure consideration, the appropriate fee required by Rule 97(c) is being paid concurrently herewith.

The Examiner is requested to initial the accompanying form as evidence of his consideration and return the same to the undersigned with the next official communication.

3. Response to 35 USC §102 Rejection

Prior claim 7 attracted a rejection under 35 USC §102(b) as allegedly being anticipated by Kopp-Sorensen (EP 05652583). Applicants respectfully disagree.

Specifically, the applied Kopp-Sorensen does not disclose or suggest an apparatus for drying bulk material as described in the present independent claim 7, where the drying conveyor comprises a chain conveyor equipped with a drive apparatus and a wire mesh or screen fabric supported by the chain conveyor and running on the chain conveyor, whereby the heated gas is arranged to travel through the wire mesh or screen fabric. Kopp-Sorensen et al discloses instead a conveyor belt, not a chain conveyor.

As such, claim 7 is not anticipated by Kopp-Sorensen et al. Withdrawal of this rejection is therefore in order.

3. Response to 35 USC §103 Rejections

Kopp-Sorensen et al was also applied to reject claims 8-12 under 35 USC §103(a) while Dinh (USP 5,343,632) or Lambert (USP 4,490,924) were combined with Kopp-Sorensen et al to separately reject pending claim 13 under this same statutory provision. Claims 1 and 4-6 attracted a rejection under 35 USC §103(a) as allegedly unpatentable over Lambert in view of Salokangas (GB 2171401A), with Mason (GB 283014) being combined with such publications to separately reject claims 2-3 under the same statutory provision. As will become evident from the discussion which follows, all claims pending herein are statutorily unobvious over the applied references of record.

As noted above, Kopp-Sorensen et al discloses an apparatus with a belt conveyor for drying and destroying of sewage sludge. One principal difference between the invention as defined by independent claim 1 and Kopp-Sorensen et al. is that in the present invention the heating energy needed for drying of bulk material is derived from waste water produced in a pulp or paper production process. The technical effect that is obtained with this feature is that the amount of the heat energy is significantly increased. From this point of view, the objective technical problem to be solved is thus how to increase the heat energy that can be used for drying sewage sludge.

In Kopp-Sorensen et al the heat for drying is not produced by using waste water. The heat for drying of the sludge comes partially from the combustion of the sludge (col. 6, l. 21 – 23) and partially from the condensation of the water vapor from the flue gas (col. 7, l. 19 – 27). It can been seen from Fig. 1 of Kopp-Sorensen et al that from the heat exchanger 25 the water is led back to the gas scrubber, where it is used anew for

scrubbing of flue gases. Consequently the water from which the heat is derived cannot be considered as waste water.

It is clear that the capacity of such arrangement as described in Kopp-Sorensen et al. is naturally quite low. The amount of water from the gas scrubber is low, and consequently the amount of heat energy that can be recovered is also low. When the amount of the sludge to be dried increases, the arrangement of Kopp-Sorensen et al cannot meet demand for heat energy needed for drying, at least by increasing the amount of heat that is derived from the water from the scrubber.

There is no explicit or implicit teaching in Kopp-Sorensen et al how to increase the amount of heat energy that can be used for drying. In the present invention this problem is elegantly solved by using waste water produced in pulp or paper production process. These processes are water-rich, and they produce considerable amounts of warm waste water. Until now the warm waste water has been an environmental concern, due to its heat content. Now the heat of the waste water can be used for drying of large amounts of bulk material, which is also in abundance in pulp or paper processes. The bulk material is, for example, bark or saw-dust, which is to be further refined in order to be used in other processes.

The Examiner states that the invention would be obvious to a person skilled in the art, in view of Kopp-Sorensen et al combined with other applied publications as enumerated above. Applicants respectfully disagree. On basis of Kopp-Sorensen et al., there is no incentive to use waste water of a water-rich process for drying bulk material. It can be speculated that if the drying capacity of the process of Kopp-Sorensen et al would be increased, the natural way to increase the heat intake would be from the *combustion* of the sludge. However, this solution is not suitable for processes where the bulk material to be dried is itself an important raw-material, which cannot be combusted as it is used for further processing.

While the solution embraced by the present invention seems relatively simply in hindsight, a skilled person would not arrive at the solution on basis of teachings of Kopp-Sorensen et al.

The apparatus of the present independent claim 7 is defined as comprising a chain conveyor and a wire mesh or screen fabric supported by the chain conveyor. The belt conveyor of Kopp-Sorensen et al is suitable for small material flows. The chain conveyor of the present invention would be very unpractical in a process of Kopp-Sorensen et al. Before the present invention, a skilled person would not have combined a chain conveyor of e.g. Mason (GB 283014) with the process described Kopp-Sorensen et al.

Lambert (US4490924) presents a drying apparatus where incoming air is pre-heated in a heat exchanger with recycled water. But, the water in Lambert is not waste water, let alone waste water from pulp or paper industry. The drying air in Lambert is finally heated with heating means 29 (see paragraph 3, lines 32-38). It is clear that the heating with recycled water is *not* sufficient for the Lambert process.

Salokangas (GB 2171401) presents a biological filter for treatment of waste water. The incoming air is heated with heat from the same water that is being treated. There is no hint in Salokangas towards drying any material. The idea is to keep the bacteria in the apparatus alive.

None of the applied publications discloses the use of heat derived from any waste water in order to dry bulk material. Furthermore, none of the applied publications uses heat of waste water from pulp or paper production process for drying of bulk material. There is no reason for a person skilled in the art to combine the applied publications in the manner stated in the Official Action. And even if she did, she would not come up with the present claimed invention.

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For at least the reasons enumerated above, applicants are of the opinion that the invention as defined in the claims now on file is clearly novel and unobvious over the applied publications of record.

Withdrawal of all rejections advanced under 35 USC §103(a) is therefore in order.

4. Fee Authorization

The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, in the fee(s) filed, or asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Account No. 14-1140.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: _____ /Bryan H. Davidson/
Bryan H. Davidson
Reg. No. 30,251

BHD:dlb
901 North Glebe Road, 11th Floor
Arlington, VA 22203-1808
Telephone: (703) 816-4000
Facsimile: (703) 816-4100